CLAIMS

What is claimed is:

1. An adaptive method for applying chirp to an optical signal traversing through an optical network, comprising:

applying chirp to an optical data signal at a transmitter in the optical network;

transmitting the optical data signal through the optical network, the optical data signal having error detection data embedded therein;

determining an error rate for the optical data signal at an egress point of the optical network, where the error rate is based on the error detection data embedded in the optical data signal;

transmitting the error rate for the optical data signal to the transmitter; and

adjusting the chirp being applied to the optical data signal at the transmitter based on the error rate for the optical data signal.

2. The method of Claim 1 further comprises the steps of receiving the optical data signal at a receiver in the optical network and optimizing data recovery at the receiver, prior to the step of determining an error rate for the optical data signal.

3. The method of Claim 1 wherein the step of applying chirp to an optical data signal further comprises using an external phase modulator.

4. The method of Claim 1 wherein the step of applying chirp to an optical data signal further comprises dithering amplitude of the chirp applied to the optical data signal.

5. The method of Claim 4 wherein the step of adjusting the chirp further comprises using feedback error control to minimize the error rate detected at the egress point.

6. The method of Claim 1 wherein the step of applying chirp to an optical data signal further comprises dithering phase of the chirp applied to the optical data signal.

7. The method of Claim 6 wherein the step of adjusting the chirp further comprises minimizing the error rate detected at the egress point through the use of feedback error control.

8. The method of Claim 1 wherein the step of determining an error rate further comprises deriving the error rate from the number of corrected errors in a forward error correction scheme.

9. The method of Claim 1 wherein the step of transmitting the error rate for the optical data signal further comprises using an optical supervisory channel to transmit the error rate.

10. An adaptive method for applying chirp to an optical signal traversing through an optical network, comprising:

applying chirp to an optical data signal at a transmitter in the optical network, the optical data signal having error detection data embedded therein;

dithering one of amplitude and phase of the chirp being applied to the optical data signal;

optimizing data recovery from the optical data signal at the egress point of the optical network;

determining an error rate for the optical data signal at an egress point of the optical network, where the error rate is based on the error detection data embedded in the optical data signal;

transmitting the error rate for the optical data signal to the transmitter; and

adjusting the chirp being applied to the optical data signal at the transmitter based on the error rate for the optical data signal.

11. The method of Claim 10 wherein the step of transmitting the error rate for the optical data signal further comprises using an optical supervisory channel to transmit the error rate.

12. The method of Claim 10 wherein the step of adjusting the chirp further comprises using feedback error control to minimize the error rate detected at the egress point.

13. The method of Claim 10 further comprising the steps of:

dithering the other of amplitude and phase of the chirp being applied to the optical data signal;

optimizing data recovery from the optical data signal at the egress point of the optical network;

determining an error rate for the optical data signal at an egress point of the optical network;

transmitting the error rate for the optical data signal to the transmitter; and

adjusting the chirp being applied to the optical data signal at the transmitter based on the error rate for the optical data signal

14. An adaptive chirp system for use in an optical network, comprising:

a transmitter residing in the optical network, the transmitter operable to apply chirp to an optical data signal and transmit the optical data signal over the optical network, the optical data signal having error detection data embedded therein; and

a receiver residing in the optical network and operable to receive the optical data signal, the receiver further operable to determine an error rate for the optical data signal based on the error detection data embedded in the optical data signal and transmit the error rate for the optical data signal to the transmitter;

the transmitter further operable to adjust the chirp being applied to the optical data signal based on the error rate for the optical data signal.

15. The adaptive chirp system of Claim 10 wherein the receiver is operable to optimize data recovery from the optical data signal prior to transmitting the error rate for the optical data signal to the transmitter.

16. The adaptive chirp system of Claim 10 wherein the transmitter includes an external phase modulator for applying chirp to the optical data signal.

17. The adaptive chirp system of Claim 12 wherein the phase modulator is operable to dither at least one of amplitude and phase of the chirp being applied to the optical data signal and adjust the chirp by using feedback error control to minimize the error rate detected at the receiver.

18. The adaptive chirp system of Claim 10 wherein the receiver includes a forward error correction decoder that is operable to determine the error rate based on the number of corrected errors associated with the optical data signal.

19. The adaptive chirp system of Claim 10 wherein the transmitter and receiver are interconnected by a fiber optic medium, the fiber optic medium being partitioned into one or more payload data channels and at least one optical supervisory channel, wherein the error rate for the optical data signal is transmitted via the optical supervisory channel from the receiver to the transmitter.